REMARKS

In the Office Action December 28, 2007, claims 17-31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Parmar et al. Claims 32-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sholder in view of Parmar et al.

These rejections are respectfully traversed for the following reasons.

In substantiating the rejection of claims 17-31 as being obvious in view of the teachings of Parmar et al, the Examiner stated the Parmar et al reference discloses droplets 10 of liquid crystals formed in a polymer matrix 12. The Examiner stated he is interpreting the matrix as a fluid-type housing. The Examiner stated that in the Parmar reference, an electric field is generated that is dependent on the orientation of the particles within the droplets. The Examiner stated that a person of ordinary skill (the Examiner did not specify a technological field of ordinary skill) would have found obvious to form the droplets of iron oxide nanoparticles, because nanoparticles are small enough to meet the microsize requirement for the droplets, and because the iron oxide particles meet the anisotropic requirement for the droplets. The Examiner also stated it would have been obvious to a person of ordinary skill in the art to have found it obvious to adjust the viscosity of the particles within the droplets so as to change orientation based on the motion of the matrix containing the droplets, because this creates the same effect on the particles as a change in the orientation due to an external pressure.

Applicant respectfully disagrees with these conclusions by the Examiner.

First and foremost, as the Examiner has acknowledged, the sensor disclosed in Parmar et al is not a motion sensor, but is a pressure sensor. There is no

disclosure in Parmar et al as to how the pressure sensor will be affixed to, or otherwise interact with, a particular body or article, it is only stated at the top of column 3 of the Parmar et al reference that the pressure sensor will be exposed to a "source of pressure." If the pressure sensor disclosed in Parmar et al were, in fact, in some manner mounted for co-movement with a body or an article, and if such movement did not result in pressure being applied to the pressure sensor disclosed in Parmar et al, that pressure sensor would produce no output signal at all.

As noted above, in substantiating the aforementioned rejection, the Examiner stated that a person of ordinary skill in the art would have found it obvious to adjust the viscosity of the particles within the droplets so as to change orientation based on the motion of the matrix containing the droplets, because this would create the same effect on the particles as a change in orientation due to an external pressure. Applicant does not find any basis in the Parmar et al disclosure to substantiate this conclusion by the Examiner and, in fact, Applicants submit that if the modification proposed by the Examiner (if it is, in fact, a modification) would actually destroy the intended use of the sensor disclosed in the Parmar et al reference. This is because, as noted above, the sensor disclosed in Parmar et al is for detecting pressure. If the sensor were somehow made to be responsive to movement that did not apply pressure to the sensor, then the detection circuitry connected to the sensor would never "know" whether the incoming signal from the sensor was truly due to pressure being applied to the sensor, or was due merely to movement of the sensor. Since the goal of the sensor disclosed in Palmer et al is to provide an accurate detection of pressure, it would destroy the intended operation of that sensor if it were also

responsive to movement in general, thus including non-pressure-producing movement.

Moreover, in view of the fact that the Parmar et al reference is intended to detect pressure, this means that there must be some way for the pressure from the external source of pressure to reach or interact with the liquid crystal that is positioned between two spaced-apart electrically conductive films. As explained in column 3, lines 1-5 of the Parmar et al reference, for this purpose it is essential that the source of pressure must cause the film to flex closer to the opposing conductive film, or move away therefrom, so that the distance between the conductive film changes, which, in turn, changes the electric field in the liquid crystal which, in turn, changes the intensity of polarized light transmitted through the liquid crystal, which is then detected as an indication of the magnitude of the pressure from the pressure source.

This is contrary to the intended operation of the motion sensor disclosed and claimed in the present application wherein, as stated at page 4, lines 20-22, the only moving parts of the sensor are fluids. Thus, the fluid-type housing that contains the fluid in the sensor and the stimulation device according to the invention does not itself move, and it is not intended to move, in the sense of being deformable. Of course, as stated in the original claim language, the overall housing is configured for co-movement with movements of the subject and, in that broad sense of actually physically changing in position in response to such movements, it is course "moveable." It is not, however, "deformable" as indicated by the aforementioned language in the present specification. In fact, for the converse of the reasons discussed above in connection with the Parmar et al reference, it would falsify the

measurements obtained by the motion sensor in accordance with the present invention if it were responsive (or ar least solely response) to applied pressure, because then a pressure applied to the sensor, that was not associated with a movement of the subject, would produce a false output signal indicating that movement has occurred, where in fact only an applied pressure has occurred.

In addition to the aforementioned amendment in independent claims 17 and 32, each of those independent claims has been amended to make clear that the anisotropic property that changes dependent on motion of the fluid does so as a result of such motion being imparted to the fluid exclusively by the co-movement of the housing with the movements of the subject. This therefore precludes the aforementioned anisotropic property from changing, for example, solely as a result of applied pressure which is not associated with a co-movement of the housing with the movements of the subject.

Additionally, editorial changes have been made in claims 17 and 32 to use the term "configured," which is now preferred according to Patent and Trademark Office guidelines over the previously-acceptable term "adapted," as well as to make changes in accordance with recent Patent and Trademark Office guidelines regarding functional language in claims.

For all of the above reasons, Applicant submits that the motion sensor in claim 17 would not have been obvious to a person of ordinary skill in the field of designing motion sensors in view of the disclosure of Parmar et al. Applicant does not disagree with the Examiner's statements concerning the teachings of the Sholder reference, which discloses the basic components of a rate-responsive pacemaker having a motion sensor therein. The motion sensor disclosed in the Sholder

reference, however, does not operate in the same manner, and does not have the same structure, as the motion sensor set forth in claim 32, that conforms to the motion sensor of claim 17. Therefore, even if the Sholder reference were modified in accordance with the teachings of Parmar et al, the subject matter of claim 32 still would not result.

As to dependent claims 18-31, the Examiner did not provide specific citations to the Parmar et al reference that the Examiner believes disclose the subject matter of those dependent claims, and Applicant is unable to find any such disclosure in Parmar et al. Particularly with regard to the various types of materials that are set forth in certain of those dependent claims, there is no teaching whatsoever in the Parmar et al reference that any of those materials would be suitable for use in that reference. As noted above, it is essential to the intended operation of the Parmar et al reference that, whatever material is used, it must have a crystal structure that changes when pressure is applied, so that the re-orientation of the crystal structure can be detected by the polarized light. A material that did not exhibit that property would be unsuitable for use in the Parmar et al sensor.

Moreover, there is no disclosure in the Parmar et al reference as to any type of orientation of the electrodes, other than the fact that they must necessarily be thin film electrodes. There is also no disclosure in the Parmar et al reference of a magnetic field source, as is included in dependent claims 25 and 26.

Applicant therefore submits that each and every one of claims 18 through 31 claims subject matter that is not disclosed in, and would not be obvious to a person of ordinary skill based on a reading, the Parmar et al reference.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.

Submitted by,

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